

**ABSTRACT**

A synchronizer/de-synchronizer maps continuous format signals of an arbitrary rate into frames of pre-selected single common rate, such as SONET frames, with no bits changed and very little jitter or wander added. In this way, the continuous format signal may be carried transparently as a tributary of a SONET network. Each frame comprises a definite number of fixed stuff bits, including transport overhead bits and reminder fixed stuff bits. A frame also comprises an adjustable number of adaptive stuff bits, resulting from the phase difference between the arbitrary rate and the common rate. A mapping function is performed in a tributary unit shelf of a SONET transport shelf, and the reverse mapping function is performed in a similar way at the far end of a SONET connection. The stuff bits are spread uniformly within the frame.

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